DEPARTMENT OF HEALTH AND HUMAN SERVICES FOOD AND DRUG ADMINISTRATION

PROCESSING IN STEAM IN STILL RETORTS (Retort Survey)

INSTRUCTIONS

Complete the question blocks below. Draw a diagram of the retort or obtain one from the firm and attach it to the EIR as an exhibit. Report all pipe sizes as inside diameter (ID). Cross-sectional area = $3.14r^2$ (r = $\frac{1}{2}$ diameter).

If problems are found with the firm's retort equipment or processing system, refer the reader to the narrative Turbo EIR under "Objectionable Conditions and Management's Response," and include a narrative explanation of specific problems and evidence under the subheading "Supporting Evidence and Relevance." Submit the completed form as an EIR attachment.

RETORT DESCRIPTION					
RETORT NO.	TYPE OF RETORT	LENGTH OR HEIGHT	DIAMETER		
	Vertical Horizontal				
	Vertical (Crateless)				
FOR VERTICAL RETORTS, E	OTTOM CRATE SUPPORTS ARE P	RESENT	Yes No		
ARE BAFFLE PLATES PRESENT IN THE BOTTOM OF RETORT?					
	ONS INSIDE THE RETORT OR THE DING/UNLOADING OF CRATES?				
	COMPUTER	RCONTROLS			
DOES A COMPUTER CONTR	ROL ANY OF THE RETORT FUNCTION	ONS?	Yes No		
DOES THE FIRM HAVE DOC	UMENTATION ON HAND THAT INDI	CATES THAT THE COMPUTER SY	STEM HAS BEEN VALIDATED?		
EXPLAIN:			Yes No		
IS RECORD KEEPING PART	OF THE COMPUTER FUNCTION? .		Yes		
IF YES, DOES THE RECORD	KEEPING COMPLY WITH 21CFR P	ART 11?	Yes		
I	NDICATING MERCURY-IN-GLA	SS THERMOMETER (113.40(a)	(1))		
IS THE RETORT EQUIPPED (SHALL REQUIREMENT)	WITH AT LEAST ONE MERCURY-IN	-GLASS (MIG) THERMOMETER?	Yes No		
IS THE RETORT EQUIPPED IF SO, DESCRIBE THE INDIC	WITH ANOTHER TYPE OF TEMPER CATOR:	ATURE INDICATOR DEVICE?	Yes No No		
ARE SCALE DIVISIONS EAS	ILY READABLE TO 1°F (.5°C)?		Yes		

NO. OF DEGREES F OR C/IN. OF GRADUATED SCALE:	
DATE LAST TESTED FOR ACCURACY:	
(THERMOMETERS <u>SHALL</u> BE TESTED FOR ACCURACY AGAINST A KNOWN INSTALLATION AND AT LEAST ONCE A YEAR THEREAFTER; RECORDS OF STANDARD USED, METHOD USED, AND PERSON PERFORMING THE TESHOULD HAVE A TAG, SEAL, OR OTHER MEANS OF IDENTITY THAT INCOMPACY.)	OF ACCURACY CHECKS THAT SPECIFY DATE, EST <u>SHOULD</u> BE MAINTAINED. EACH THERMOMETER
STANDARD USED FOR THE TEST:	
NAME AND TITLE OF PERSON WHO PERFORMED TEST:	
IS THE LAST TEST DATE IDENTIFIED ON THE THERMOMETER?	Yes No
WERE CALIBRATING TEST RECORDS PREPARED/MAINTAINED?(SHOULD REQUIREMENT)	Yes No No
DESCRIBE THE FIRM'S ACTIONS REGARDING MIG THERMOMETERS TH	HAT WERE OUT OF CALIBRATION:
IS THE MERCURY UNDIVIDED?	Yes
(A THERMOMETER THAT HAS A DIVIDED MERCURY COLUMN OR THAT BE REPAIRED OR REPLACED.)	CANNOT BE ADJUSTED TO THE STANDARD SHALL
WHEN MIG THERMOMETERS ARE FOUND TO BE PROVIDING READING: FIRM EVALUATE PRODUCTS PRODUCED USING THOSE THERMOMETER DESCRIBE THE FIRM'S PROCEDURES:	·
IS THE THERMOMETER LOCATED WHERE IT IS EASY TO READ ACCURA (SHALL REQUIREMENT)	ATELY?Yes \(\text{No} \(\text{No} \)
THE SENSOR BULB IS LOCATED IN THE	Retort Shell , or External Well
DIAMETER OF OPENING FROM RETORT TO EXTERNAL WELL:(DIA. MUST BE AT LEAST 3/4-IN.)	BLEEDER SIZE:
DOES THE BLEEDER EMIT STEAM CONTINUOUSLY DURING PROCESSI IF NO, EXPLAIN <i>(SHALL REQUIREMENT)</i> :	ING? Yes No
IF A MUFFLER IS USED ON BLEEDER(S), WHAT EVIDENCE DOES THE FFLOW OF STEAM? (113.87(g))	FIRM HAVE THAT IT DOES NOT RESTRICT FREE
IS THE MERCURY THERMOMETER USED AS THE REFERENCED INSTRU	UMENT DURING PROCESSING? Yes

TEMPERATURE RECORDING DEVICE (113.40(a)(2))		
IS THE RETORT EQUIPPED WITH A TEMPERATURE RECORDING DEVICE?		
DO THE CHART SPECIFICATIONS MEET THE REQUIREMENTS OF PART 113?		
IS THE TEMPERATURE CHART ADJUSTED TO AGREE AS NEARLY AS POSSIBLE WITH BUT NOT HIGHER THAN THE KNOWN ACCURATE MERCURY-IN-GLASS THERMOMETER DURING THE PROCESSING PERIOD?		
IS THERE A MEANS FOR PREVENTING UNAUTHORIZED ADJUSTMENTS?		
IS THE CHART DRIVE TIMING MECHANISM ACCURATE?		
IS THE RECORDER COMBINED WITH A STEAM CONTROLLER TO FUNCTION AS A RECORDING/CONTROLLING INSTRUMENT?		
THE TEMPERATURE SENSING BULB IS INSTALLED IN THE		
DOES THE TEMPERATURE RECORDER BULB WELL HAVE A 1/16-IN. DIA. OR LARGER BLEEDER THAT EMITS STEAM CONTINUOUSLY DURING THE PROCESSING PERIOD?		
IF A MUFFLER IS USED ON THE BLEEDER, WHAT EVIDENCE DOES THE FIRM HAVE THAT IT DOES NOT RESTRICT THE FLOW OF STEAM? (113.87(g)) (SHOULD REQUIREMENT)		
PRESSURE GAGE (113.40(a)(3))		
IF A PRESSURE GAGE IS PRESENT, IS IT GRADUATED IN DIVISIONS OF 2 LBS. OR LESS?		
AUTOMATIC STEAM CONTROLLER (113.40(a)(4))		
IS THE STEAM CONTROLLER AUTOMATIC?		

IS THE STEAM CONTROLLER TEMPERATURE OR PRESSURE ACTUATED?
(THE STEAM CONTROLLER MAY BE ACTUATED BY A TEMPERATURE SENSOR POSITIONED NEAR THE MERCURY-IN-GLASS THERMOMETER; A STEAM CONTROLLER ACTIVATED BY THE STEAM PRESSURE OF THE RETORT IS ACCEPTABLE IF IT IS CAREFULLY MAINTAINED SO IT OPERATES SATISFACTORILY.)
REPORT THE MANUFACTURER, MODEL, TYPE AND SIZE OF THE AUTOMATIC STEAM CONTROL VALVE:
IF THE TEMPERATURE (STEAM) CONTROLLER IS AIR OPERATED, DOES THE SYSTEM HAVE AN ADEQUATE FILTER TO ASSURE A SUPPLY OF CLEAN, DRY AIR?
CLEAN, DRY AIR.)
STEAM INLETS (113.40(a)(5))
IF THE RETORT IS OVER 30 FT. LONG, ARE THERE 2 STEAM INLETS?
(<u>SHOULD</u> REQUIREMENT)
ARE STEAM INLETS LOCATED OPPOSITE THE VENT?
(STEAM SHALL ENTER THE PORTION OF THE RETORT OPPOSITE THE VENT.)
INSIDE DIAMETER(S) OF SMALLEST RESTRICTION IN THE STEAM INLET LINES (INCLUDE THE TEMPERATURE (STEAM) CONTROL VALVE AS A RESTRICTION):
CALCULATED CROSS SECTIONAL AREA OF SMALLEST RESTRICTION = $(A = 3.14(r)^2)$
STEAM SPREADER (113.40(a)(7))
OESCRIBE SHAPE AND DIMENSIONS: (NOTE – STEAM SPREADERS ARE REQUIRED FOR HORIZONTAL STILL RETORTS. THE SPREADER PIPE SHOULD BE PERFORATED ALONG THE TOP 90° OF THE PIPE. VERTICAL STILL RETORTS ARE NOT REQUIRED TO HAVE STEAM SPREADERS. HOWEVER, IF THEY HAVE THEM, THEY SHOULD BE PERFORATED ALONG THE CENTER LINE OF THE PIPE FACING THE INTERIOR OF THE RETORT OR ALONG THE SIDES OF THE PIPE.)
NUMBER OF PERFORATIONS: DIAMETER OF PERFORATIONS:
LOCATION OF PERFORATIONS:
ARE PERFORATIONS CLEARLY OPEN?
THE CALCULATED TOTAL CROSS-SECTIONAL AREA OF THE PERFORATIONS:
(THE NUMBER OF PERFORATIONS <u>SHOULD</u> BE SUCH THAT THE TOTAL CROSS-SECTIONAL AREA OF THE PERFORATIONS IS EQUAL TO 1.5 TO 2 TIMES THE CROSS-SECTIONAL AREA OF THE SMALLEST RESTRICTION IN THE STEAM INLET LINE.)

IF THE TOTAL CROSS SECTIONAL AREA OF ALL PERFORATIONS IN THE STEAM SPREADER PIPE IS NOT 1-1/2 TO 2 TIMES THE CROSS-SECTIONAL AREA OF THE SMALLEST RESTRICTION IN THE STEAM INLET LINE, DOES THE FIRM HAVE DOCUMENTATION OF A TEMPERATURE DISTRIBUTION STUDY SUPPORTING THE EXISTING NUMBER AND SIZE OF PERFORATIONS IN THE SPREADER PIPE?
IS THE STEAM SPREADER IN GOOD REPAIR? (FOR EXAMPLE, HOLES HAVE NOT BEEN PLUGGED BY RUST OR SEDIMENT, OR ENLARGED BY WEAR; PIPES HAVE NOT RUSTED THROUGH.)
BLEEDERS (113.40(a)(8))
NUMBER OF BLEEDERS: SIZE(S): LOCATION (INCLUDE DISTANCE BETWEEN BLEEDERS ON HORIZONTAL RETORTS):
ARE THEY WIDE OPEN DURING THE ENTIRE PROCESS INCLUDING THE COME-UP TIME?
IF A MUFFLER IS USED OVER THE BLEEDERS, WHAT EVIDENCE DOES THE FIRM HAVE THAT IT DOES NOT RESTRICT FREE FLOW OF STEAM? (113.87(g)) (SHOULD REQUIREMENT)
BLEEDERS ON CRATELESS RETORTS
FOR RETORTS HAVING A TOP STEAM INLET AND BOTTOM VENTING, A BLEEDER SHALL BE INSTALLED IN THE BOTTOM TO REMOVE CONDENSATE – 113.40(a)(8). IT IS RECOMMENDED THAT THERE BE 1 OR MORE 3/8-INCH OR LARGER CONDENSATE BLEEDERS AT THE BOTTOM OF THE RETORT. IN ADDITION, WHEN A FALSE BOTTOM (A PERFORATED STEEL PLATE) IS EMPLOYED, IT IS USEFUL TO HAVE A 1/8-INCH BLEEDER WITH ITS OPENING AT A POINT HIGHER THAN THE CONDENSATE BLEEDER AND JUST BELOW THE FALSE BOTTOM (SEE NFPA BUL 26-L, 13 TH EDITION, P. 14 AND LACF FIELD GUIDE-PART 2, P. 26).
IN SOME SYSTEMS, A CONDENSATE TRAP MAY BE USED TO COLLECT CONDENSATE BUILDUP AT THE BOTTOM OF THE RETORT IN LIEU OF A STEAM CONDENSATE BLEEDER – IN THIS CASE, THE REMOVAL OF CONDENSATE MAY NOT BE VISIBLE, HOWEVER, A VISIBLE STEAM BLEEDER SHOULD BE LOCATED ABOVE THE CONDENSATE TRAP (JUST BELOW THE FALSE BOTTOM). THIS STEAM BLEEDER SHOULD EMIT ONLY STEAM AND NO CONDENSATE OR WATER DURING THERMAL PROCESSING.
IS THE RETORT EQUIPPED WITH A FALSE BOTTOM TO PREVENT CONTAINERS FROM CONTACTING CONDENSATE?
Yes No No
IF SO, IS CONDENSATE REMOVED BY A
WHAT IS THE DIAMETER OF THE STEAM CONDENSATE BLEEDER AND WHERE IS IT POSITIONED?
IS IT VISIBLE TO THE RETORT OPERATOR?
IF A STEAM TRAP IS USED, WHERE IS IT POSITIONED?
IS THE RETORT EQUIPPED WITH A STEAM BLEEDER(S) BETWEEN THE FALSE BOTTOM DOOR AND THE BOTTOM OF THE RETORT?
IF SO, REPORT THE NUMBER AND DIAMETER OF THE BLEEDER(S):

DOES THE OPERATOR OBSERVE A FREE FLOW OF STEAM FROM THIS BLEEDER PRIOR TO BEGINNING THE RETORT THERMAL PROCESS TIMING AND AT INTERVALS OF SUFFICIENT FREQUENCY DURING THE PROCESS? Yes No
ARE THESE OBSERVATIONS RECORDED AT THE TIME THEY ARE MADE?
IF A STEAM CONDENSATE BLEEDER(S) IS PRESENT, DOES THE OPERATOR ALSO OBSERVE THE FREE FLOW OF STEAM CONDENSATE FROM THIS BLEEDER JUST BEFORE AND DURING THE THERMAL PROCESS?
ARE THESE OBSERVATIONS RECORDED AT THE TIME THEY ARE MADE?
AIR OR WATER COOLING LINE VALVES (113.40(a)(10) to (11))
IS WATER OR COMPRESSED AIR USED DURING COOLING?
TYPE OF VALVE ON WATER COOLING LINES SUPPLYING RETORT:
WERE WATER LINES OBSERVED TO BE LEAKING?
TYPE OF VALVE ON THE AIR SUPPLY LINE TO THE RETORT:
WERE AIR LINES OBSERVED TO BE LEAKING?
VENTS (113.40(a)(12))
NUMBER OF VENTS: SIZE(S) – DIAMETER:
LENGTH:
WHAT IS THE VALVE TYPE?
ARE VENTS FULLY OPEN DURING VENTING?
IS A STEAM BY-PASS VALVE USED DURING VENTING?
(NOTE – VENTING PROCEDURES AND ARRANGEMENTS MUST BE THE SAME AS USED DURING THE TEMPERATURE DISTRIBUTION STUDY THAT WAS CONDUCTED ON THE RETORT TO ESTABLISH THE VENT SCHEDULE.)
ARE VENTS LOCATED OPPOSITE THE STEAM INLET?
(VENTS SHALL BE LOCATED OPPOSITE STEAM INLET.)
IF VENTS ARE CONNECTED TO A RETORT MANIFOLD, WHAT IS THE MANIFOLD VALVE TYPE? Gate Plug Cock Other
IF OTHER, SPECIFY:
(WHERE A RETORT MANIEOLD CONNECTS SEVERAL VENT PIPES FROM A SINGLE RETORT IT SHALL BE CONTROLLED BY

(WHERE A RETORT MANIFOLD CONNECTS SEVERAL VENT PIPES FROM A SINGLE RETORT, IT SHALL BE CONTROLLED BY A GATE, PLUG COCK OR OTHER ADEQUATE TYPE VALVE. (113.40(a)(12))

RETORT MANIFOLD DIAMETER AND CROSS-SECTIONAL AREA: $(CROSS\ SEC.\ AREA=(3.14)\ X\ (r^2))$	DIA. = A =			
NUMBER OF VENTS CONNECTING TO MANIFOLD:	DIAMETER OF CONNECTING VENTS:			
THE CROSS-SECTIONAL AREA OF ALL CONNECTING VENTS:	(A = (NO. VENTS) X (3.14) X (r²))			
IS THIS LARGER THAN THE CROSS-SECTIONAL AREA OF THE RETORT MANIFOLD?				
DOES THE VENT, RETORT MANIFOLD OR MANIFOLD HEADER BREAK TO THE ATMOSPHERE?				
IF NO, EXPLAIN.				
(A MANIFOLD HEADER CONNECTING VENTS OR MANIFOLDS FRO ATMOSPHERE – 113.40(a) (12).)	OM SEVERAL STILL RETORTS SHALL LEAD TO THE			
DIAMETER AND CROSS-SECTIONAL AREA OF MANIFOLD HEADE DIAMETER = AREA =	R (IF APPLICABLE):			
DIAMETERS AND TOTAL CROSS-SECTIONAL AREA OF CONNECTS SIMULTANEOUSLY: DIAMETERS =				
AREA = (A = (NO. OF CONNECTING MANIFO	DLDS)X(3.14)X(r²))			
IS THE MANIFOLD HEADER CROSS-SECTIONAL AREA AT LEAST I (THE MANIFOLD HEADER SHALL BE OF A SIZE THAT THE CROSS CROSS-SECTIONAL AREA OF ALL CONNECTING RETORT MANIFOLD SIMULTANEOUSLY – 113.40(a)(12))	-SECTIONAL AREA IS AT LEAST EQUAL TO THE TOTAL			
IS THERE A VALVE ON THE MANIFOLD HEADER?	Yes □ No □			
(THE MANIFOLD HEADER SHALL NOT BE CONTROLLED BY A VAL	VE - 113.40(a)(12))			
DO VENTING ARRANGEMENTS AND METHODS COMPLY WITH ONE IF NO, DOES THE FIRM HAVE TEMPERATURE DISTRIBUTION DATA TESTS HAVE BEEN PERFORMED?	A OR SUITABLE DOCUMENTATION THAT APPROPRIATE			
(113.40(a)(12)(III))				
IF VENTS ARE EQUIPPED WITH MUFFLERS, SPECIFY TYPE AND I DOES THE FIRM HAVE THAT THE MUFFLER(S) ALLOWS ADEQUAT				
DIVIDER PLATES AND RETOR	RT BASKET – 113.40(a)(9)			
ARE DIVIDER PLATES USED TO SEPARATE CAN LAYERS?	Yes □ No □			
THE PLATES ARE UNIFORMLY PERFORATED?	Yes □ No □			

THE PERFORATIONS ARE AT LEAST 1-IN. HOLES ON 2-IN CENTERS OR THE EQUIVALENT?
ARE RETORT BASKETS UNIFORMLY PERFORATED?
DO BASKET BOTTOMS HAVE AT LEAST 1-IN. HOLES ON 2-IN. CENTERS OR THE EQUIVALENT?
DOES FIRM HAVE DOCUMENTATION ON FILE THAT PERMITS VENTING USING DIVIDER PLATES AND THE CURRENT BASKET DESIGN?